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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/330,154 06/11/99 GOTO

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005514
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MM91/0620

EXAMINER

VANDRE, D	
ART UNIT	PAPER NUMBER

2881

DATE MAILED:

06/20/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/330,154

Applicant(s)

GOTO, SUSUMU

Examiner

David A Vanore

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.

- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The abstract of the disclosure is objected to because the abstract refers to the capabilities of the invention. Correction is required. See MPEP § 608.01(b).

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 7, 19 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. Claims 5, 7, 19 and 21 state various aspects of image information, but fail to distinctly claim a new feature or further limit prior claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 and 29, as taught and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Meisberger et al. and Wu et al.

In regards to Claims 1-8: Meisberger et al. teaches a projection system comprising a charged particle beam source, a mask containing a pattern, a substrate and moveable substrate stage, a means of providing a potential to beam shaping and lens systems, more than one beam shaping means, more than one lens system located between a shaping means and the substrate stage, a data acquisition system comprising multiple detectors for the detection of backscatter electrons, secondary electrons, and transmitted electrons, and a control system operatively controlling the function of all aspects of the device. Meisberger et al. further teaches a control system which operatively controls said beam shaping and lens systems.

In regards to Claims 9-11: Meisberger et al. teaches a device wherein the controlling means actively compensates for aberrations in the formed image by detecting transmitted electrons, backscattered electrons, and secondary electrons. The

controlling means adjusts the beam shaping system, lens systems, and control the stage movement to correct for aberrations in a projected image.

See Figure 1 and 5 for reference to the organization of apparatus control and Figure 4 for design components. However, Meisberger et al. fails to teach a beam with an arcuate cross section. Wu et al. teaches a charged particle beam device for the implantation of a charged particle beam pattern formed by a mask with a beam having an arcuate cross section. See Wu et al. Col. 6 Line 20-31. One of ordinary skill in the art at the time of the invention would have combined the art of Meisberger et al. with the art of Wu et al. to produce a charged particle projection system with a beam having any of a plurality of shapes, including an arcuate cross section.

Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meisberger et al. and Wu et al. as applied above, and further in view of Kruppa et al. Meisberger et al. and Wu et al. teach all limitations as applied above but fail to teach a mark made on a substrate. Kruppa et al. teaches a mark made on a substrate used to align the beam properly during an exposure process made of a substantially different material to affect beam permeability through the mark. While Kruppa et al. does not disclose that the registration mark is made of a heavy metal, a heavy metal would effect the change in electron permeability as disclosed by Kruppa et al. See Kruppa et al. Col. 7 Line 66-75. One of ordinary skill in the art at the time of the invention would have combined the art of Meisberger et al. and Wu et al. with the art of Kruppa et al. to produce a device with marks capable of providing reference points for guiding a substrate during an exposure process.

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Claims 15-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meisberger et al. and Wu et al. Meisberger et al. teaches a method for the inspection or etching of a substrate with a charged particle beam and the correction of image aberrations by acquiring image information from a backscattered electron detector and a transmitted electron detector, controlling beam shaping and lens systems, and actively adjusting beam characteristics in response to this gathered information. However, Meisberger et al. does not teach this method as part of a charged particle implantation method having an arcuate cross section. Wu et al. teaches a method in a device comprising the use of an arcuate beam and as part of a charged particle implantation device for rendering a pattern onto a substrate.

Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meisberger et al. and Wu et al. as applied above, and further in view of Kruppa et al. Meisberger et al. and Wu et al. teach all limitations as applied above but fail to teach the use of marks on a substrate as a part of a method to control the motion and position of a substrate during a charged particle implantation process. Wu et al. teaches the use of a mark made of a material impermeable to a charged particle beam on a substrate as part of a method of charged particle implantation. See Wu et al. Col. 7 Line 66-75.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Vanore whose telephone number is 703-306-0246. The examiner can normally be reached on M-F 7:30-5:00.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teresa Arroyo can be reached on 703-308-4782. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-9797.


TERESA M. ARROYO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

dav
June 6, 2001